

REVISION OF THE GENUS *LORITA* BUSCK (LEPIDOPTERA: TORTRICIDAE:
COCHYLINI), WITH A DESCRIPTION OF A NEW SPECIES

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Abstract.—The genus *Lorita* Busck contains two species at present. The type species, *L. abornana* Busck, is now considered a subjective junior synonym of *Phalonia scarificata* Meyrick. A new species, *L. baccharivora* Pogue, is described. For this revision 154 adults, 3 larvae, and 4 pupae were studied. They are described and illustrated for both species, and the egg is described and illustrated for *L. baccharivora*. *Lorita scarificata* occurs in northeastern Brazil northward to French Guiana, northeastern Venezuela, Antigua, Puerto Rico, Costa Rica, Mexico, southern California, Florida, and has been introduced to Hawaii. *Lorita baccharivora* occurs in the Florida peninsula, northeast coast of Texas, and has been released in southeastern Queensland, Australia, for the biological control of sea myrtle, *Baccharis halimifolia* L.

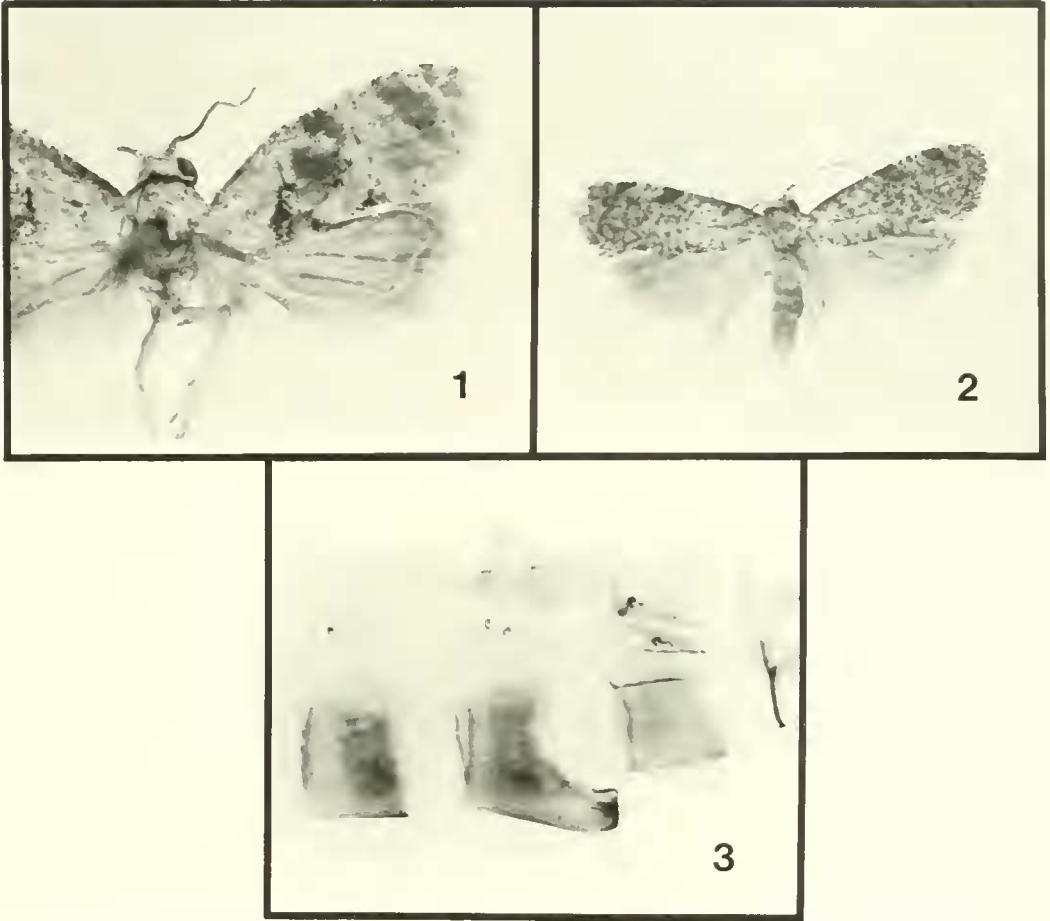
Key Words: biological control of weeds, *Lorita baccharivora*, *L. scarificata*, *Baccharis*

A revision of *Lorita* Busck was necessary to correct nomenclature of the type species, and to describe a new species being released in Australia for biological control of the weedy shrub, *Baccharis halimifolia* L. *Lorita* was proposed by Busck (1939) to accommodate a new species feeding on dodder, *Cuscuta californica* Choisy, and injurious to bell peppers, *Capsicum annum* L., being imported from Sinaloa and Sonora, Mexico. Larvae bore into the stalks and capsules of the latter, thus reducing their commercial value (Busck 1939).

Saphenista, *Thyraylia*, and some *Cochylis* are very similar in coloration and maculation, making it difficult to identify them correctly without genital dissections. During the present study *Phalonia scarificata* Meyrick was discovered to be a senior synonym of *Lorita abornana* and the valid type species of *Lorita*. Clarke (1963) illustrated the lectotypes of *galbanea* Meyrick and *scarificata* and placed them in *Lorita*. Based

on these illustrations and examinations of paratypes of both species, I concluded that *scarificata* is a senior synonym of *abornana* and *galbanea* belongs to the genus *Saphenista*. Forbes (1931) described *Saphenista semistrigata* from El Yunque, Puerto Rico, but illustrated the male genitalia (pl. XLV, fig. 26) of *Lorita scarificata*. The type of *S. semistrigata* is a female and is not conspecific or congeneric with *L. scarificata*. Therefore, *Saphenista semistrigata* is a valid species, and the illustration by Forbes is a misidentification.

For this revision 153 adults, 3 larvae, and 4 pupae were studied. Means and standard deviations are given for some measurements. The letter "n" denotes number of specimens examined. The supraocular index equals height of head capsule above compound eye divided by total height of head capsule (from top of epicranium to tip of subgenal process) (Kristensen and Nielsen 1979). Valval length was measured from



Figs. 1–3. Adult moths: 1, *Lorita scarificata* (Meyrick), ♂, forewing length 4.3 mm; 2, *L. baccharivora*, new species, ♂, holotype, forewing length 4.0 mm; 3, *L. scarificata*, ♂, ventral projection of 6th abdominal sternite.

proximal tip of sacculus to apex of valva, and maximum width was measured in a vertical line from valval costa to ventral edge of sacculus. Color names are followed by a parenthetical number indicating colors under the system of Smithe (1975, 1981). Larval chaetotaxy follows Hinton (1946).

***Lorita* Busck**
Figs. 1–47

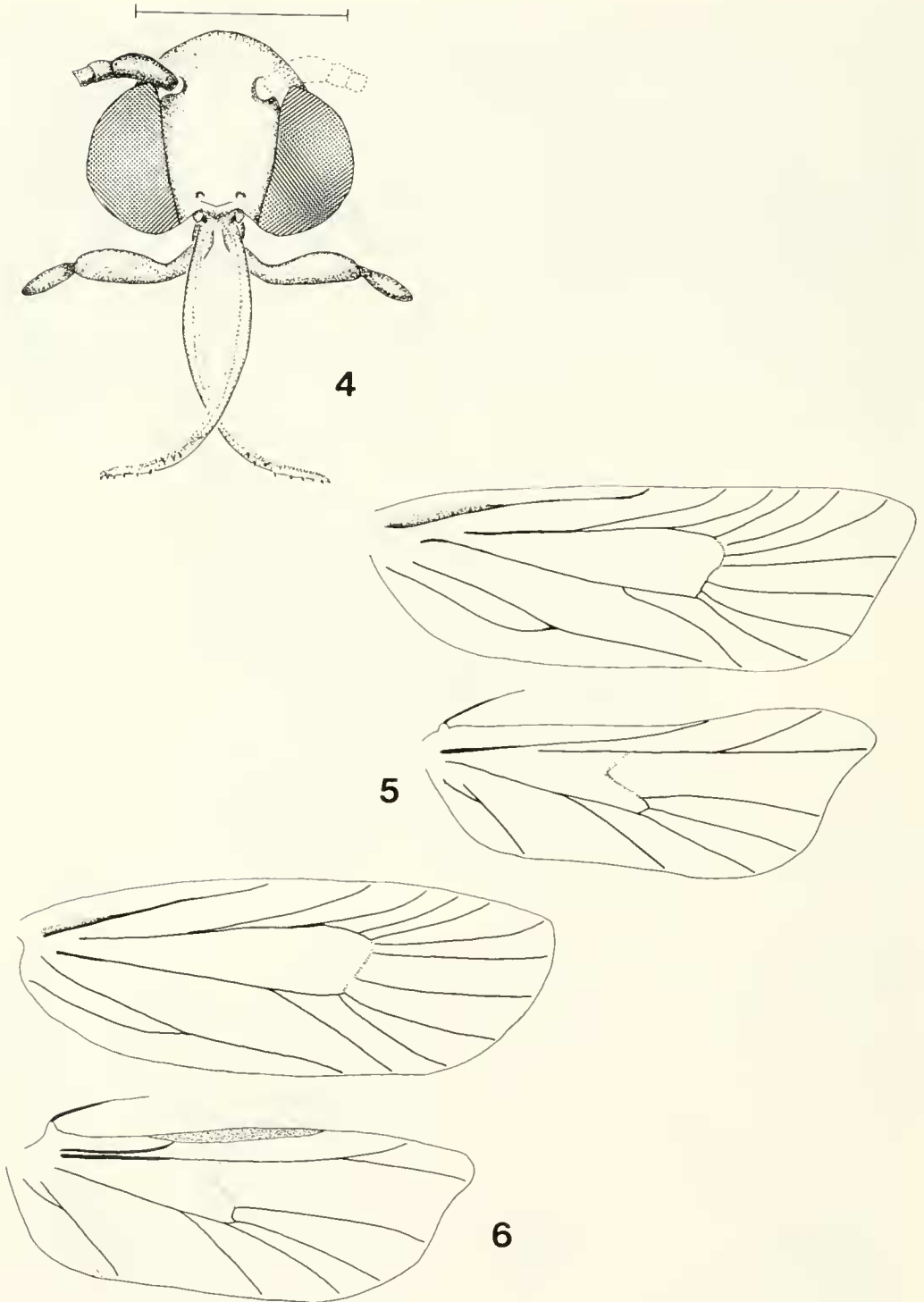
Lorita Busck, 1939: 100.—Clarke, 1963: 20.—Razowski, 1977: 256.—Powell, 1983: 42.

Type-Species.—*Phalonia scarificata* Meyrick 1917 (Fig. 1), senior synonym of *Lorita abornana* Busck.

Adult (Figs. 1–2).—Forewing length 3.4–5.4 mm.

Head (Fig. 4): Vestiture rough. Eye well developed. Supraocular index 0.26–0.28. Ocellus absent. Antenna filiform, scaled dorsad, setose ventrad, 33–38 segments. Labial palpus porrect, scales of second segment with dorsal expansion greater than ventral; third segment exposed, not covered by second segment scaling, sensory setae distributed along entire length of third segment; third segment $1.3 \times$ first segment; second segment $3.3 \times$ first segment, equal to vertical eye diameter, length $5.2 \times$ width. Maxillary palpus 1-segmented.

Thorax: Posterior crest present, but often



Figs. 4-6. Head structure and wing venation: 4, *L. scarificata* (Meyrick), anterior view (scale = 0.5 mm); 5, *L. scarificata*; 6, *L. baccharivora*, new species.

inconspicuous. Lateral scale tufts of metanotum hairlike. Prothoracic leg with epiphysis 0.4–0.5 length of tibia. Mesothoracic tibia with a single pair of unequal sized apical spurs, longest 0.5–0.6 length of tibia. Metathoracic tibia with 2 pairs of unequal sized spurs; basal pair originating at 0.6 from tibial base, with longest spur 0.4 length of tibia; apical pair at subapex with longest spur 0.4 length of tibia. Leg indices [femur : tibia : (basitarsus)tarsus] for prothoracic leg 1:0.7:(0.5)1.6; mesothoracic leg 1:0.9:(0.5)1.1; metathoracic leg 1:1.6:(0.8)1.4.

Forewing (Figs. 5–6): Male length 3.4–4.6 mm; length $2.5\text{--}3.1 \times$ maximum width. Female length 3.8–5.4 mm; length $2.4\text{--}3.2 \times$ maximum width. Costa straight; apex rounded; termen straight, oblique. Sc less than 0.5 wing length. R1 originating beyond middle of discal cell; R2 originating nearer R3 than R1; R5 ending at termen. M3 and CuA1 separate. CuA2 originating at 0.67 length of discal cell. CuP absent. A1+2 stalked at 0.4 total length.

Hindwing (Figs. 5–6): Male length 2.9–4.0 mm; length $2.6\text{--}3.3 \times$ maximum width. Female length 2.1–4.4 mm; length $2.6\text{--}3.4 \times$ maximum width. Costa straight; apex produced; termen concave below apex. Sc+R1 less than 0.5 wing length. Rs and M1 stalked at 0.67 length of M1. M3 and CuA1 connate. CuA2 originating at 0.67 length of discal cell. Female with 3 frenular bristles.

Abdomen: Male with prominent ventral projection of 6th sternite (Fig. 3); female normal.

Male genitalia (Figs. 7–10): Uncus present, thin, elongate, or divided. Gnathos absent. Socii attached to posterior margin of tegumen. Tegumen well developed, trapezoidal. Transtilla a broad, well-developed band with an elongate, stout, apically rounded median projection. Valva length $1.7\text{--}2.0 \times$ maximum width; costa a thin sclerotized band; sacculus a well defined band appressed to ventral edge of valva. Vinculum arms free. Aedoeagus large and robust, $1.4\text{--}1.7 \times$ length of valva, bent at

apical 0.2 with a sharp ventrally produced spine, cornuti numerous minute spinules on vesica.

Female genitalia (Figs. 11–12): Papillae anales setaceous, thin, apices broadly rounded, joined by narrow connection. Length of apophysis anterior $1.0\text{--}1.7 \times$ apophysis posterior. Sterigma well developed, rectangular, joined to ventral branch of apophysis anterior. Ductus bursae short, encircled by a series of elongate, narrow sclerotizations. Corpus bursae covered with numerous minute convolutions, signa consisting of many spinules. Accessory bursa present.

Discussion.—*Lorita* has a Nearctic distribution from Florida to California and northern Mexico. Neotropical distribution includes Mexico (Razowski 1986, Razowski and Becker 1986), Costa Rica (Razowski 1986, Razowski and Becker 1986), Puerto Rico (Forbes 1931), Antigua, British Guiana, Venezuela, and Brazil (Razowski 1967, Razowski and Becker 1986). This is the only cochyline genus known from the Pacific Ocean islands; *L. scarificata* has been introduced to Hawaii on the islands of Oahu (Beardsley 1977) and Kauai (Mau 1979).

Males of *Lorita* can be distinguished from those of other cochyline genera by the elongate ventral process of the 6th sternum (Fig. 3). I have found *Lorita* mixed with specimens of *Spinipogon* (Cochylini) in collections.

Lorita scarificata (Meyrick)

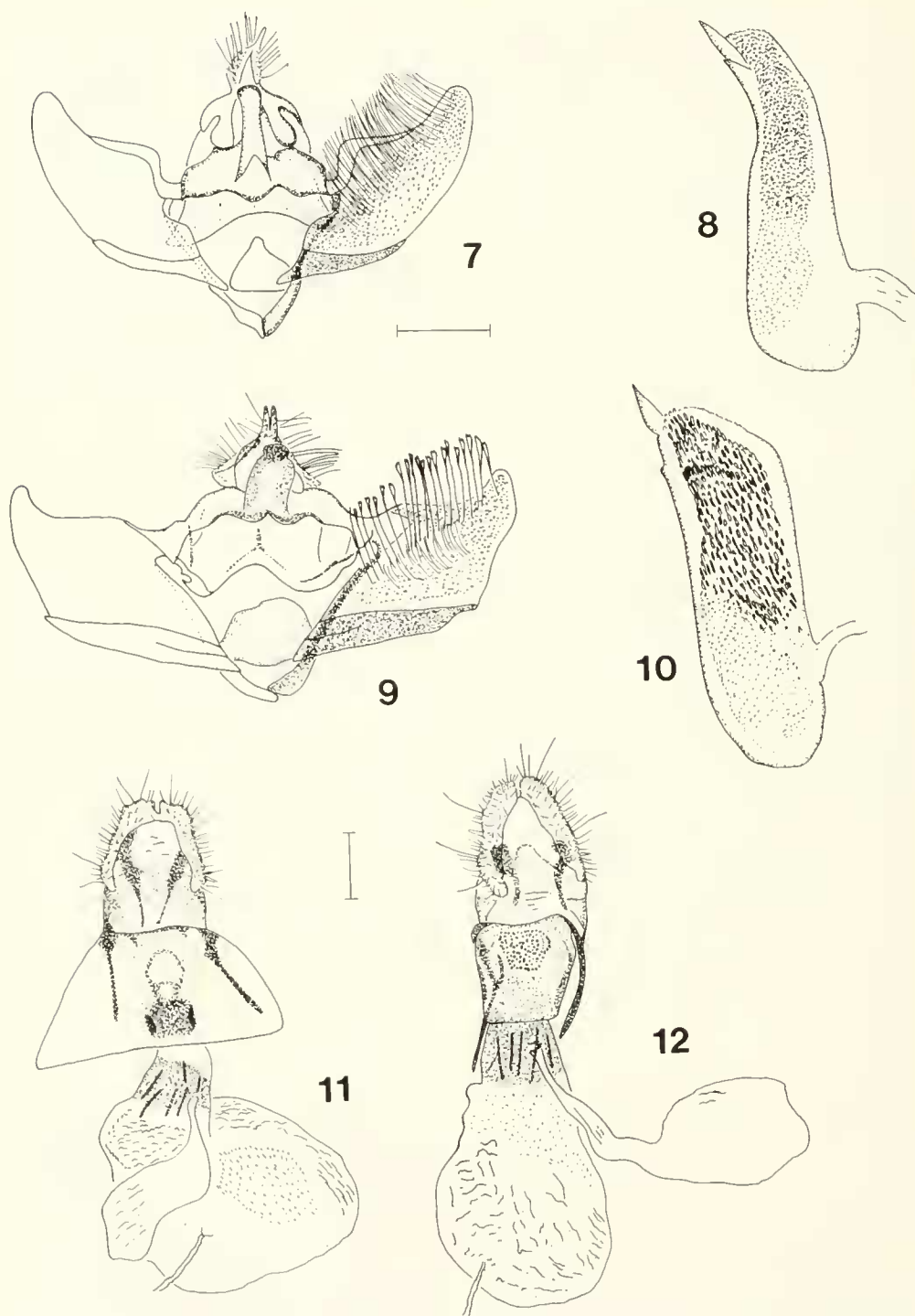
Figs. 1, 3–5, 7–8, 11, 13–25

Phalonia scarificata Meyrick, 1917: 3.

Saphenista semistrigata; Forbes, 1931: 355 [misidentification, pl. XLV, fig. 26, male only].

Lorita abornana Busck, 1939: 101.—Comstock, 1939: 119.—Razowski, 1967: 202.—Beardsley, 1977: 391.—Mau, 1979: 4. NEW SYNONYM.

Lorita abornana chatka Busck, 1939: 101. NEW SYNONYM.



Figs. 7-12. Male and female genitalia: 7, *L. scarificata* (Meyrick), ventral view; 8, lateral view of aedeagus; 9, *L. baccharivora*, new species, ventral view; 10, lateral view of aedeagus; 11, *L. scarificata*, ventral view; 12, *L. baccharivora*, ventral view (scale = 0.2 mm).

Lorita scarificata (Meyrick), Clarke 1963: 20.

Adult (Fig. 1).—A small moth with pale horn (92) (color slightly less yellow than cream (54)) ground color that reflects light, giving a shiny appearance in fresh specimens. An indistinct submedian band, a smaller postmedian spot, and darker terminal band mark the forewing. Coloration and markings are variable throughout its range.

Male: Forewing length 3.5–4.5 mm ($\bar{x} = 4.2 \pm 0.4$ mm, $n = 8$).

Head (Fig. 4): Labial palpus pale horn color; scales of middle segment expanded dorsad, extending to middle of apical segment. Antennal scape pale horn, with a few dusky brown scales around base, rest of antenna pale horn with a few dusky brown scales at base. Front and vertex pale horn.

Thorax: Mesonotum and tegula pale horn with scattered darker scales along anterior edge. Underside shining white; pro- and mesothoracic legs with femur pale horn having scattered dusky brown (19) scales along posterior edge, tibia with 4 bands: starting at apical end, bands 1 and 3 speckled pale horn and dusky brown, 2 and 4 pale horn color, tarsi speckled pale horn and dusky brown with pale horn apical rings; metathoracic leg pale horn lightly scattered with drab (27) scales.

Forewing (Figs. 1, 5): Length 2.6–3.0 $\times$ maximum width. Ground color pale horn with iridescence in fresh specimens; indistinct submedian band clay (123B), indistinctly bordered along proximal and distal margins with a few dusky brown scales, dusky brown scales more concentrated at proximal margin; a small indistinct clay-colored postmedian spot just above tornus; indistinct terminal band extending from costa to termen clay-colored; small dusky-brown scale patches evenly spaced along costa from base to apex. Fringe yellow ocher (123C) above and below. Underside dark drab (119B) with distinct pale horn scale

patches evenly spaced along costa from base to apex.

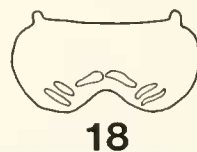
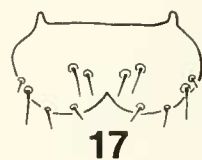
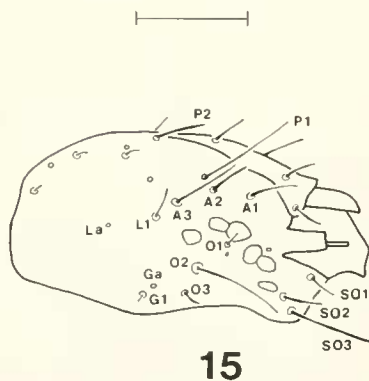
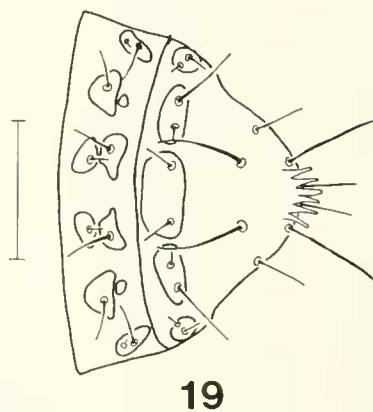
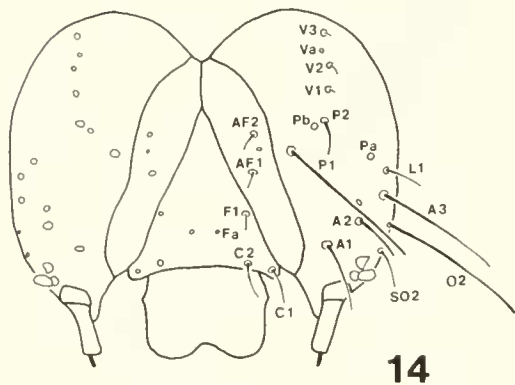
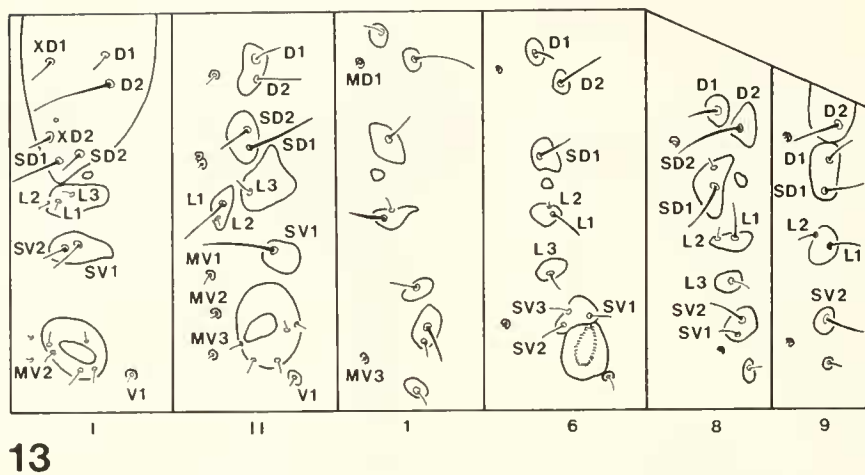
Hindwing (Figs. 1, 5): Length 2.9–3.9 mm ($\bar{x} = 3.6 \pm 0.4$ mm, $n = 8$); length 2.9–3.3 $\times$ maximum width. Costal fold atrophied; light drab (119C). Underside white with light drab scaling along costa, termen, and vein M2. Fringe light drab with slightly darker basal band above and below.

Abdomen: Pale horn above and below.

Male genitalia (Figs. 7–8): Uncus present, thin, apex truncate. Socii attached apically to tegumen, bases fused dorsally, basal 0.5 forming thumblike lobes that lack setae, apical 0.5 bulbous and setose. Transtilla a broad, well-developed band with an elongate, stout, apically rounded median projection; median projection flanked by 2 broad, apically concave projections; these lateral projections are 0.5 length of median projection and extend to just below base of socii. Valva length 1.8–2.0 $\times$ maximum width; costa forming a right angle at valval base, continuing in a concave arc to round apex; sacculus a thin well-defined band appressed to ventral edge of valva. Vinculum arms free as denoted by median suture. Aedoeagus large, base round, apex truncate, with ventrally produced spine, 1.4–1.6 $\times$ length of valva, length 3.1–3.6 $\times$ maximum width; cornuti consisting of numerous minute spinules on vesica.

Female: Coloration and markings as in male. Length of forewing 3.9–5.2 mm ($\bar{x} = 4.5 \pm 0.5$ mm, $n = 8$); length 2.7–2.9 $\times$ maximum width. Length of hindwing 3.2–4.4 mm ($\bar{x} = 3.8 \pm 0.5$ mm, $n = 8$); length 2.9–3.2 $\times$ maximum width.

Female genitalia (Fig. 11): Papillae anales setaceous, thin, slightly curved, apices broadly rounded, joined by narrow connection. Length of apophysis anterior 1.0–1.7 $\times$ apophysis posterior. Sterigma rectangular, poorly developed, a median lightly sclerotized oval plate surrounding ostium. Colliculum well sclerotized, quadrate. Ductus bursae distinct, basal 0.67 sclerotized. Corpus bursae with fine convolutions, many



Figs. 13-19. *L. scarificata* (Meyrick), larval chaetotaxy: 13, lateral view of prothorax, mesothorax, and abdominal segments 1, 6, 8, and 9; 14, dorsal view of head; 15, lateral view of head (scale = 0.2 mm); 16, right mandible (scale = 0.1 mm); 17, labrum, dorsal view; 18, labrum, ventral view (scale = 0.1 mm); 19, dorsal view of abdominal segments 8-10 (scale = 0.5 mm).

minute spinules. Accessory bursa originating ventrally, just below middle of ductus bursae. Ductus seminalis from proximal half of corpus bursae.

Larva (Figs. 13–19).—Length of last instar 4.8–6.4 mm ($\bar{x}$ = 5.6 $\pm$ 1.1 mm, n = 2).

Head: Hypognathous, maximum width 0.6 mm. Color burnt sienna (132) to clay (123B) in alcohol. Puncture Pb closer to P2 than P1. Puncture Pa equidistant between P2 and L1. Puncture Ga dorsal and anterior to G1. Six stemmata present with 2,3 and 4,5 contiguous. Mandible with 5 cusps, first truncate. Labrum with 6 pairs of dorsal setae, 3 pairs of ventral epipharyngeal setae.

Thorax: Prothoracic shield concolorous with head. Prothorax with L group on same pinaculum; mesothorax with L3 on separate, large pinaculum. Prothorax with SV1 and SV2 on same pinaculum; mesothorax with SV2 absent. Legs 3-segmented, single tarsal claw.

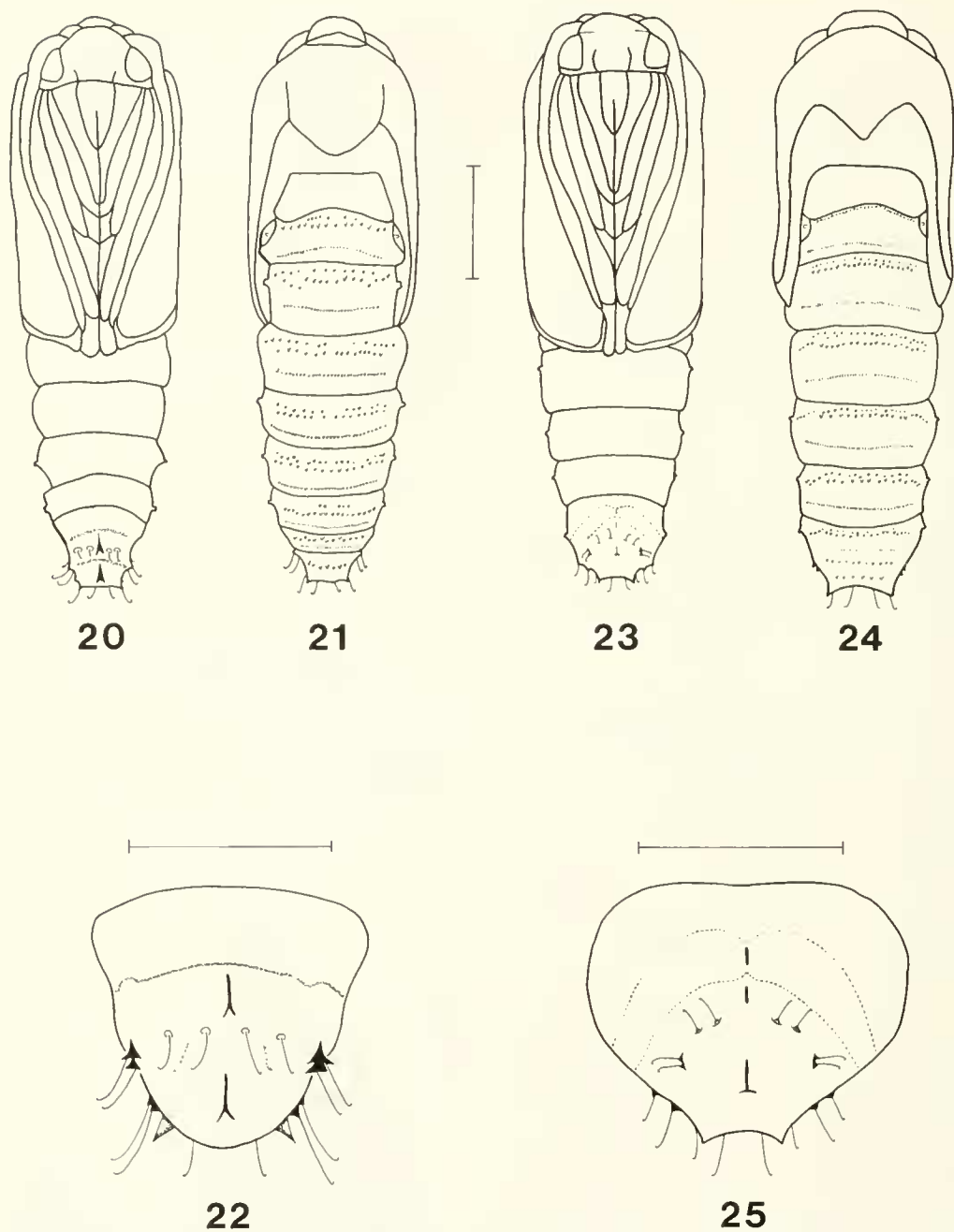
Abdomen: SD2 minute, and present only on segment 8. Ninth segment with D1 and SD1 on same pinaculum; L group consists of 2 setae, L1 and L2. SV3 present only on segment 6; SV1 and SV3 absent on segment 9. Prolegs on segments 3–6 and 10; crochets on abdominal segments 3–6 uniordinal and arranged in a complete circle; anal prolegs with crochets uniordinal and arranged in a semiellipse.

Pupa (Figs. 20–25).—Male length 5.6 mm (n = 1); female length 5.7 mm (n = 1) (in alcohol). Eyes clearly visible. Anterior group of spines on abdominal segments 2–8 in male and 2–6 in female consisting of 2 rows, the anterior row having fewer and smaller spines than second row. Segment 9 in male and segments 8–9 in female consisting of a single row of slightly larger spines. Posterior row of spines minute and on segments 2–8 in male and 2–7 in female. Spiracles peg-shaped. A single sagittate genital slit on anterior edge of segment 9, another similarly shaped slit in middle of segment 10. Female with 3 genital slits, one on anterior edge of

segment 8, a second on anterior edge of segment 9, and a third on a pad in middle of segment 10. Cremaster with 4 hooks on anterior edge and a pair of lateral hooks from spines on ventral side of segment 10; 3 pairs of lateral hooks and one pair of caudal hooks on edge of segment 10.

Types.—Lectotype (*Phalonia scarificata* Meyrick), designated by Clarke (1963), ♂, "Bartica, British Guiana, Parish, .12.12.," genitalia slide No. 6284, in British Museum (Natural History). Holotype (*Lorita abornana*), ♀, U.S.A., California, Los Angeles Co., El Segundo, emerged 11 July 1938, W. D. Pierce, larva on *Cuscuta californica*, U.S. National Museum type no. 53250, genitalia slide USNM 23826, in U.S. National Museum, Smithsonian Institution, Washington, D.C.

Material examined.—BRITISH GUIANA: Bartica, Parish .1.13, 1 ♀ genitalia slide USNM 23726. "Mallali, Parish .3.13," 1 ♂, genitalia slide USNM 23725. BRITISH WEST INDIES: ANTIGUA: Flat Top Point, 13 Apr. 1958, J. F. G. Clarke (Smithsonian-Bredin Exped.), 2 ♂; English Harbor, 20 Apr. 1958, J. F. G. Clarke (Smithsonian-Bredin Exped.), 2 ♂; St. Anns Hill, 21 Apr. 1958, J. F. G. Clarke (Smithsonian-Bredin Exped.), 1 ♂. MEXICO: 30 Jan. 1942, in bell pepper fruit, Nogales No. 51068, Lot No. 42-1560, 1 ♀. SINALOA: 12 Jan. 1939, in bell pepper, Nogales No. 28970, Lot No. 39-1430, 1 ♂; 20 Jan. 1939, in bell pepper, Nogales No. 28978, Lot No. 39-1464, 1 ♂; 19 Jan. 1939, in bell pepper, Nogales No. 28990, Lot No. 39-1807, 1 ♂; 24 Jan. 1939, in bell pepper, Nogales No. 28994, Lot No. 39-1873, 1 ♂; March 1939, from bell pepper, 1 ♂; San Blas, iss[ued] (=emerged) 3 March 1939, Nogales No. 29358, on bell pepper, 1 ♂. SONORA: 21 Jan. 1939, in bell pepper, Nogales No. 28971, Lot No. 39-1463, 1 ♀; 21 Jan. 1939, in bell pepper, Nogales No. 29098, Lot No. 39-2240, 1 ♂. PUERTO RICO: Coamo Springs, 4 Apr. 1930, Cornell Univ., Lot No. 795, Sub 15, 1 ♂, genitalia slide USNM 23785. UNITED



Figs. 20–25. *L. scarificata* (Meyrick), pupal structure: 20, ♂ ventral view; 21, ♂ dorsal view (scale = 1.0 mm); 22, ♂ ventral view of terminal segments (scale = 0.5 mm); 23, ♀ ventral view; 24, ♀ dorsal view (scale = 1.0 mm); 25, ♀ ventral view of terminal segments (scale = 0.5 mm).

STATES: CALIFORNIA: Los Angeles Co.: El Segundo, emdg. 11 July 1938, larva on *Cuscuta californica*, W. D. Pierce, 1 ♀, gen-

italia slide USNM 23826 [holotype of *Lorita abornana* Busck]; emdg. (=emerged) 13 July 1938, 1 ♂, genitalia slide USNM 23856;

emdg. 14 July 1938, 1 ♀, genitalia slide USNM 23856; emdg. 15 July 1938, 1 ♂, wing slide USNM 23856, genitalia slide USNM 23856. San Diego Co.: Del Mar, 12 Aug. 1959, R. A. Mackie Coll., 1 ♂; 19 Aug. 1959, 1 ♀; 26 Aug. 1959, 1 ♀, genitalia slide MGP 637; 2 Sep. 1959, 1 ♀; Mission Bay, 10 June 1959, 1 ♂. FLORIDA: Collier Co.: Chokoloskee, 19 ♂, genitalia slides USNM 23126, USNM 23163, 12 ♀, genitalia slide USNM 23125. Dade Co.: Homestead, 22 Oct. 1959, D. O. Wolfenbarger, 1 ♀; 29 Oct. 1959, 1 ♂, SEM slide USNM 23465; 2 Nov. 1959, 3 ♀, genitalia slide USNM 23219; 4 Nov. 1959, 1 ♀. Escambia Co.: Pensacola, 23 Sep. 1961, Shirley Hills, 1 ♀. Highlands Co.: Archbold Biol. Sta., S. W. Frost, 1 ♂. Manatee Co.: Bradenton, Gulf Coast Exp. Sta., 24 March 1955, E. G. Kelsheimer, 1 ♂. Monroe Co.: Key Largo Key, 1 Nov. 1964, Mrs. Spencer Kemp, 1 ♀, wing slide USNM 23130; 3 Jan. 1967, 1 ♀; 3 Jan. 1968, 2 ♀; 7 Jan. 1968, 2 ♂, genitalia slides USNM 23164, USNM 23850; 22 Jan. 1968, 2 ♀; 3 Nov. 1967, 1 ♀; 24 Nov. 1967, 1 ♂; 19 Dec. 1967, 1 ♀; Key Largo, 19 Oct. 1964, Mrs. Spencer Kemp, 1 ♂, 2 ♀. Sarasota Co.: Siesta Key, 3 Jan. 1960, C. P. Kimball, 1 ♂; 11 Jan. 1960, 1 ♂; 14 Jan. 1960, 1 ♂; 13 March 1953, 1 ♂; 27 March 1960, 1 ♀; 2 April 1964, 1 ♂; genitalia slide USNM 23131; 3 April 1960, 2 ♂; 13 April 1960, 1 ♂; 29 April 1960, 1 ♀; 3 May 1960, 1 ♂, 1 ♀; 4 May 1960, 2 ♂; 13 May 1960, 1 ♂, wing slide USNM 23846; 21 Nov. 1953, 1 ♀; 10 Dec. 1953, 1 ♂; 19 Dec. 1959, 1 ♀, genitalia slide USNM 23218; 24 Dec. 1953, 1 ♂, genitalia slide USNM 23162. HAWAII: Oahu: Waianae, Dec. 1974, J. W. Beardsley collector, reared on *Chrysanthemum* blossom, 2 ♂, genitalia slide USNM 24208; Ewa, Oct. 1974, J. W. Beardsley collector, light trap, 1 ♂; Honolulu, Mar. 1974, J. W. Beardsley collector, light trap, 1 ♂, genitalia slide USNM 23751. VENEZUELA: BOLIVAR: 5 km E. Tumeremo, 12 Feb. 1976, C. M. & O. S. Flint, Jr., 1 ♀, genitalia slide USNM 25452; Cd. Guayana, Rio Caroni, Parque Llovizna, 13 Feb. 1976, C. M. & O. S. Flint, Jr., 1 ♀.

Host.—Several hosts have been recorded for *L. scarificata*. This species is a pest on bell peppers with larvae boring into the stalks and capsules, which may reduce their commercial value (Busck 1939). *Capsicum* is also native to the Neotropics and West Indies and has been cultivated since pre-Inca times (Hill 1952). Comstock (1939) and Busck (1939) also report dodder as a food plant of *L. scarificata* in the sand dune area of El Segundo, Los Angeles Co., California. This species has also been reared from *Chrysanthemum* (Compositae) blossoms in Waianae, Oahu, Hawaii.

Distribution (Maps 1–2).—*Lorita scarificata* is widely distributed in the southern Nearctic and Neotropical Regions and has been introduced into Hawaii. It has been collected in California, Texas, Florida, Mexico, Puerto Rico, Antigua, Venezuela; Razowski (1967) reported it from Brazil.

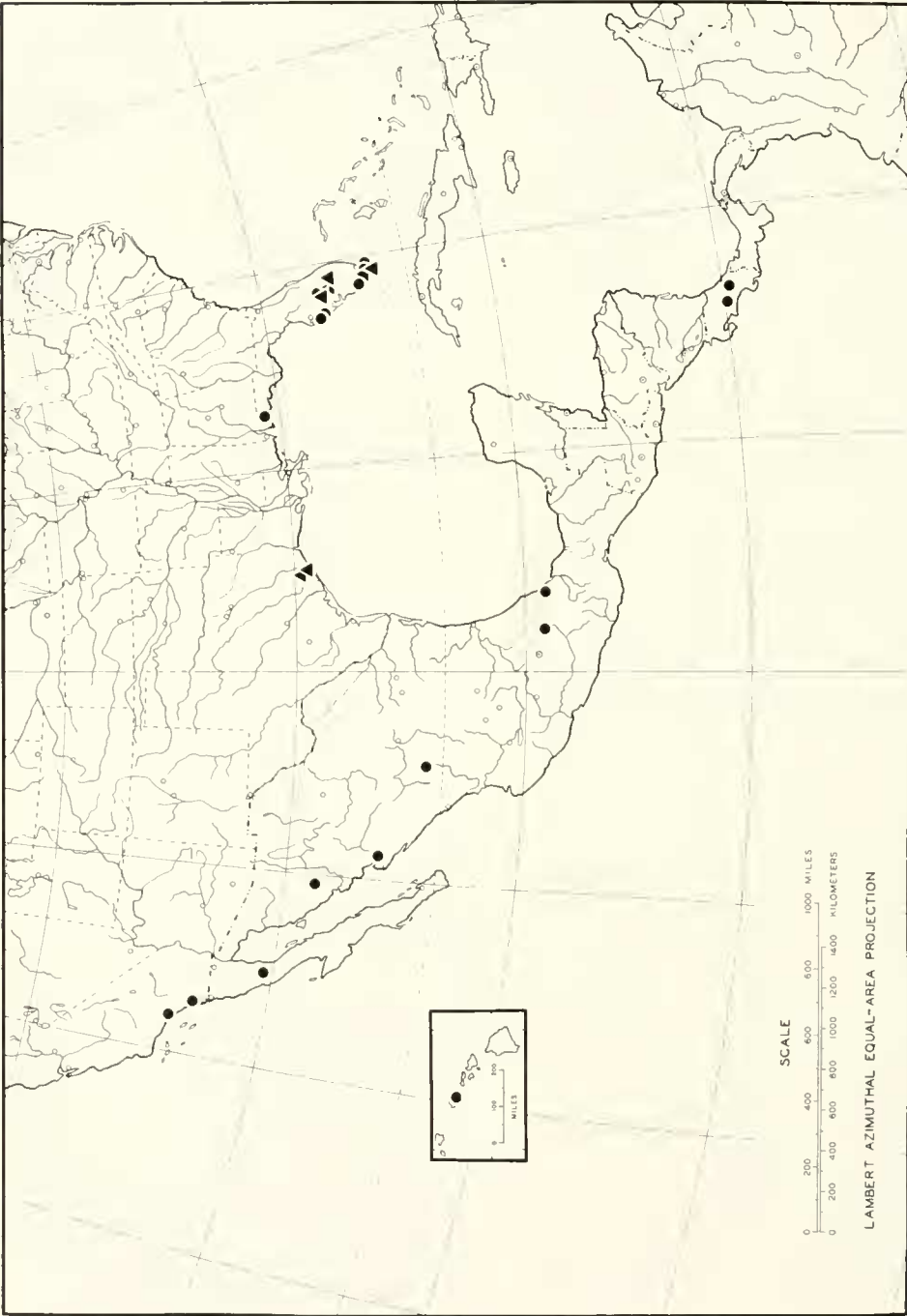
Discussion.—This species is variable in coloration. Darker forms have the forewing markings dark drab (119B) with more dusky drab scales along their margins, or the forewings are covered with dusky brown scales with barely any evidence of banding. These darker forms are found within the same series as the lighter form described above. Genitalia do not vary within the sexes.

Males of *L. scarificata* can be separated from those of *L. baccharivora* by: 1) lack of a hindwing costal fold, 2) hindwing vein Sc longer, 3) uncus thin, elongate, 4) socius fused to base of uncus, and 5) thumblike lobes lack setae and are attached laterally to tegumen. Female genitalia are differentiated by: 1) sterigma less heavily sclerotized, with a median oval plate surrounding ostium basally, 2) presence of a well-developed colliculum, and 3) ductus bursae more slender and distinct from corpus bursae.

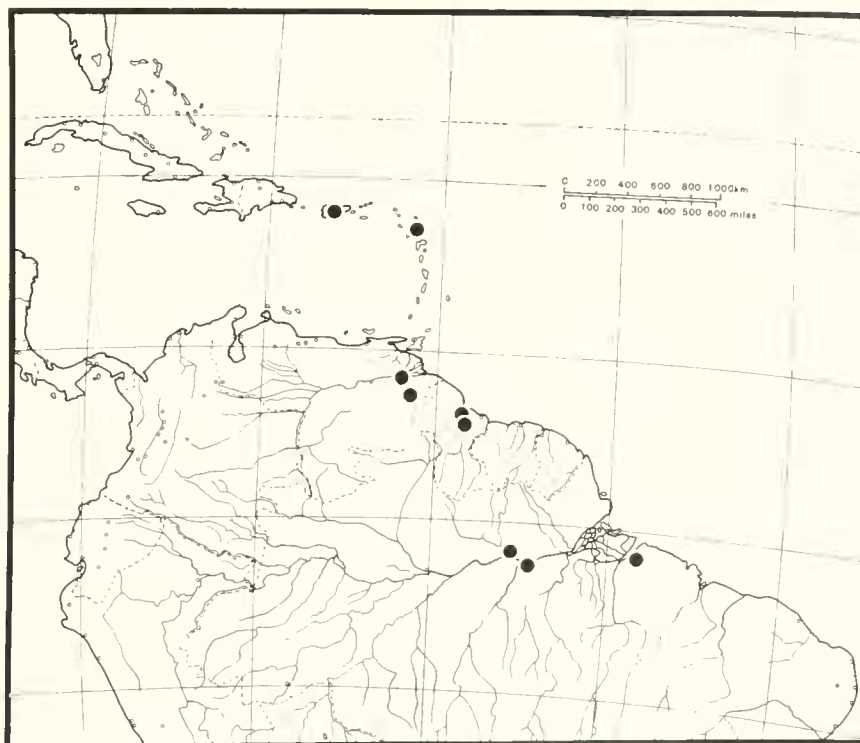
Lorita baccharivora, new species

Figs. 2, 6, 9–10, 12, 26–47

A small moth with forewing ground color pale horn (92) having a darker median costal spot and terminal band (Fig. 2).



Map 1. Distribution of *Lorita* in North and Central America (circle = *L. scarificata* (Meyrick); triangle = *L. baccharivora*, new species).



Map 2. Distribution of *L. scarficata* (Meyrick) in South America.

Male: Forewing length 3.7–4.5 mm ($\bar{x} = 4.0 \pm 0.3$ mm, $n = 8$).

Head: Labial palpus pale horn, speckled with dusky brown (19); scales of middle segment expanded dorsad, extending to middle of apical segment. Antennal scape pale horn, with a few dusky brown scales around base, rest of antenna pale horn with a few dusky brown scales at base. Front and vertex pale horn scattered with dusky brown scales.

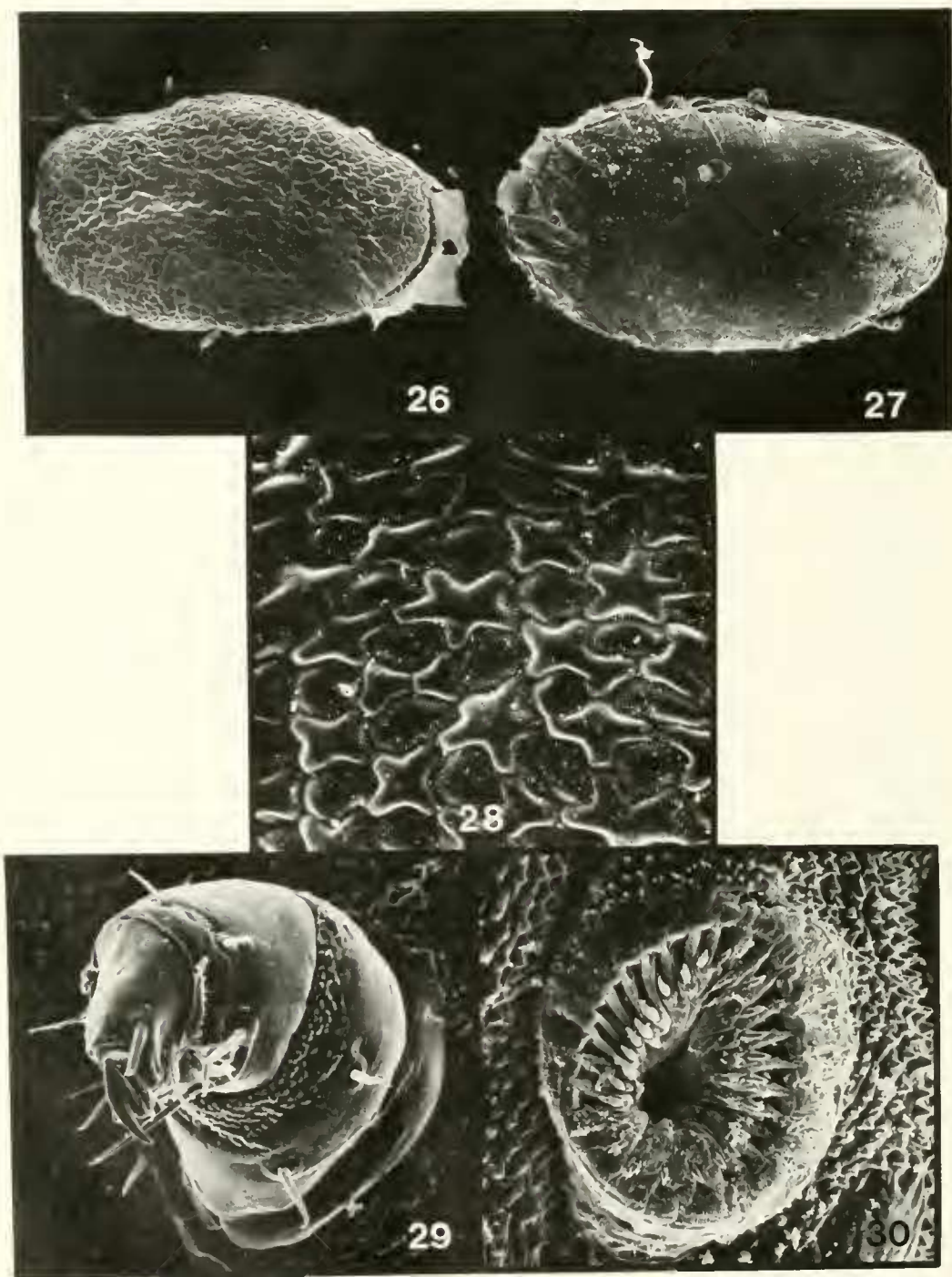
Thorax: Mesonotum and tegula varying from pale horn with indistinct anterior, median, and posterior bands of dusky brown to drab (27). Underside shining white; prothoracic coxa and femur dusky brown with scattered pale horn scales, tibia dusky brown with a median band of pale horn, tarsi dusky brown with apical ring of pale horn; mesothoracic femur pale horn with scattered dusky brown scales, tibia and tarsi as in prothoracic leg; metathoracic leg pale horn with scattered dusky brown scales, tarsal color lighter than in other legs.

Forewing (Figs. 2, 6): Length 2.5–2.9 $\times$ maximum width. Ground color pale horn with median costal spot extending to anterior margin of discal cell, and dusky brown terminal band extending from costa to termen; remainder of wing heavily suffused with dusky brown scales. Fringe drab. Underside and fringe grayish horn (91).

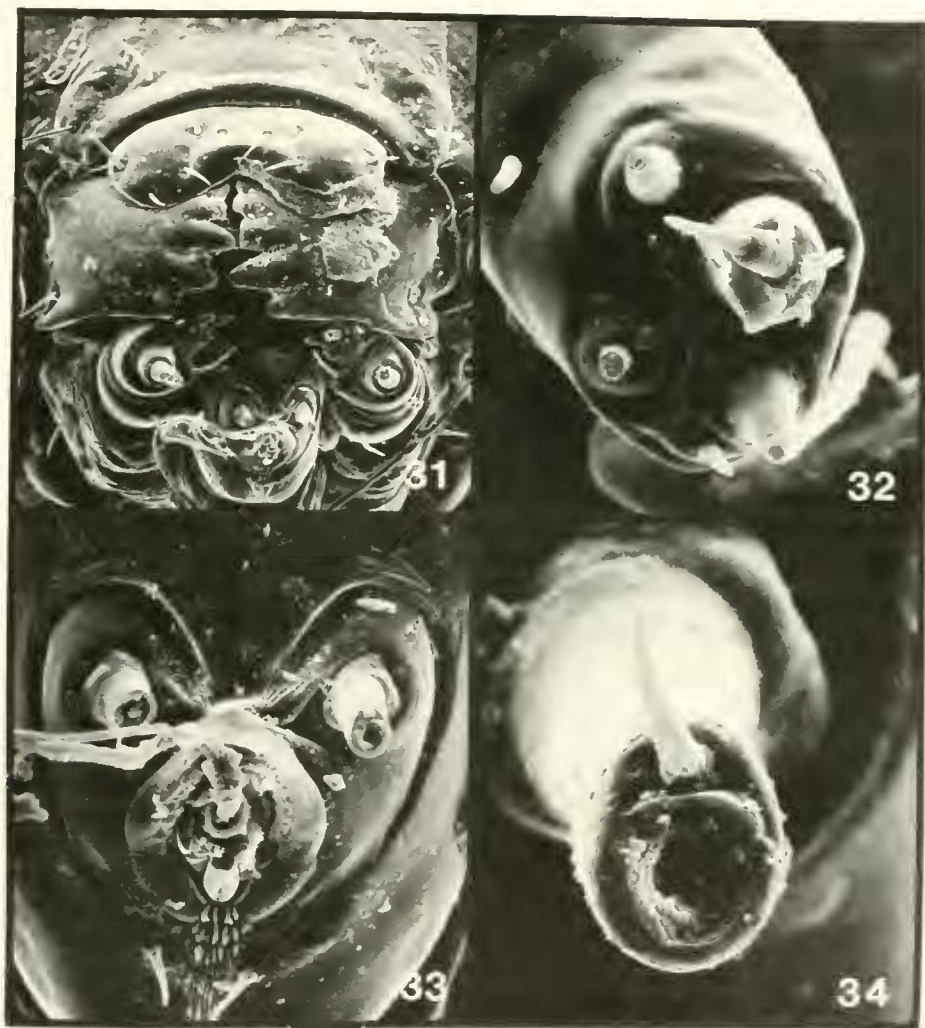
Hindwing (Figs. 2, 6): Length 3.1–4.0 mm ($\bar{x} = 3.1\text{--}4.0 \pm 0.3$ mm, $n = 8$); length 2.8–3.2 $\times$ maximum width. Costal fold present, enclosing hair pencils; dirty white becoming smoke gray (45) toward apex. Underside dirty white with dusky brown striations in costal half. Fringe dirty white with smoke gray basal band above and below.

Abdomen: Dirty white above and below.

Male genitalia (Figs. 9–10): Uncus bifid. Socius fused from basal 0.5 of uncus to middle of tegumen. Transtilla a well developed band with a broad median projection extending to base of uncus. Valval length 1.7–2.0 $\times$ maximum width; costa sinuate; elon-



Figs. 26-30. *L. baccharivora*, new species, egg and larval structure: 26, dorsal view, $\times 150$; 27, ventral view, $\times 150$; 28, dorsal surface detail, $\times 700$; 29, foreleg, $\times 600$; 30, crochets of abdominal segment 6, $\times 600$.



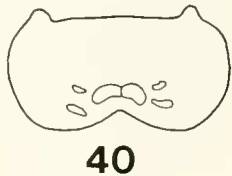
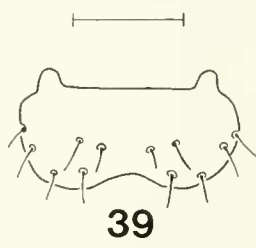
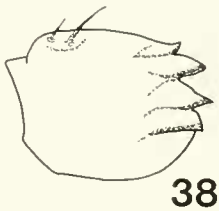
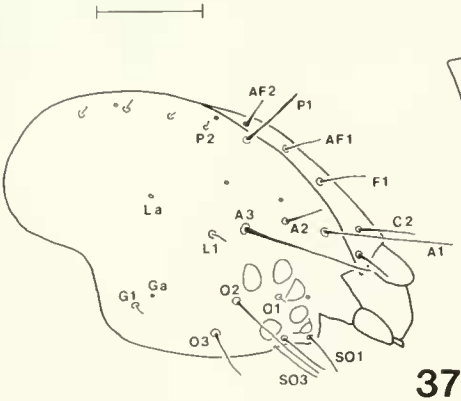
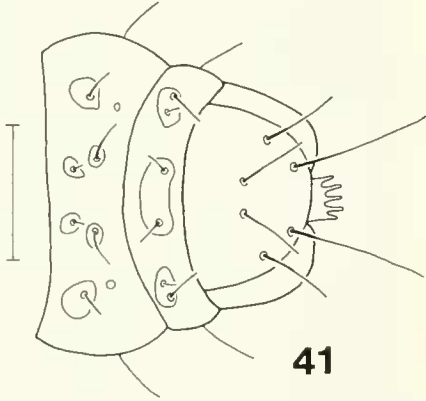
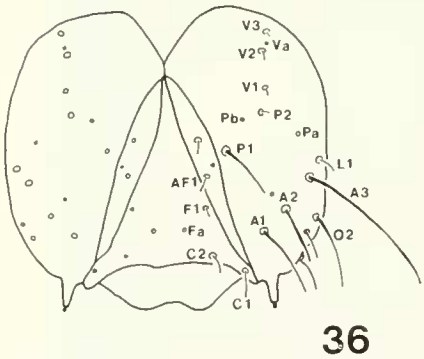
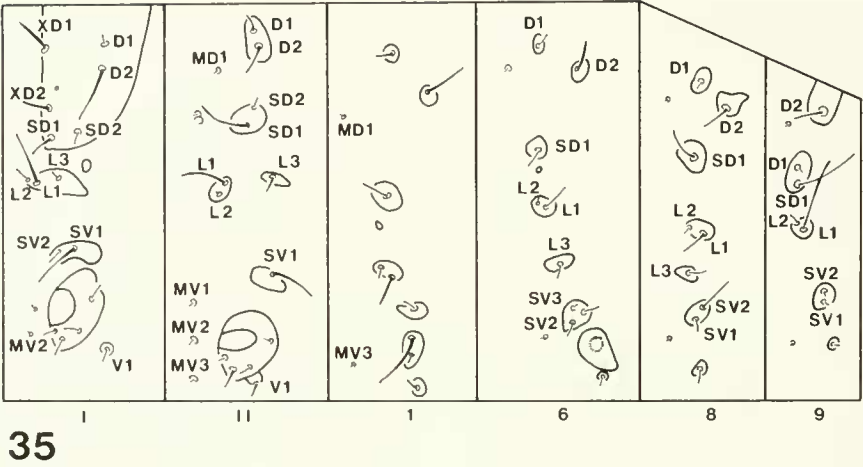
Figs. 31–34. *L. baccharivora*, new species, larval mouthpart structure: 31, ventral view, $\times 300$; 32, tip of maxilla, $\times 2200$; 33, labium, ventral view, $\times 1200$; 34, tip of labial palp, $\times 6000$.

gate spatulate scales arising from costal half of valva and extending from base to apex; apex sharply rounded; saccus well developed, extending along entire ventral edge of valva. Vinculum arms free. Aedoeagus $1.5\text{--}1.7 \times$ length of valva, length $2.7\text{--}3.3 \times$ maximum width; cornuti numerous minute spinules on vesica.

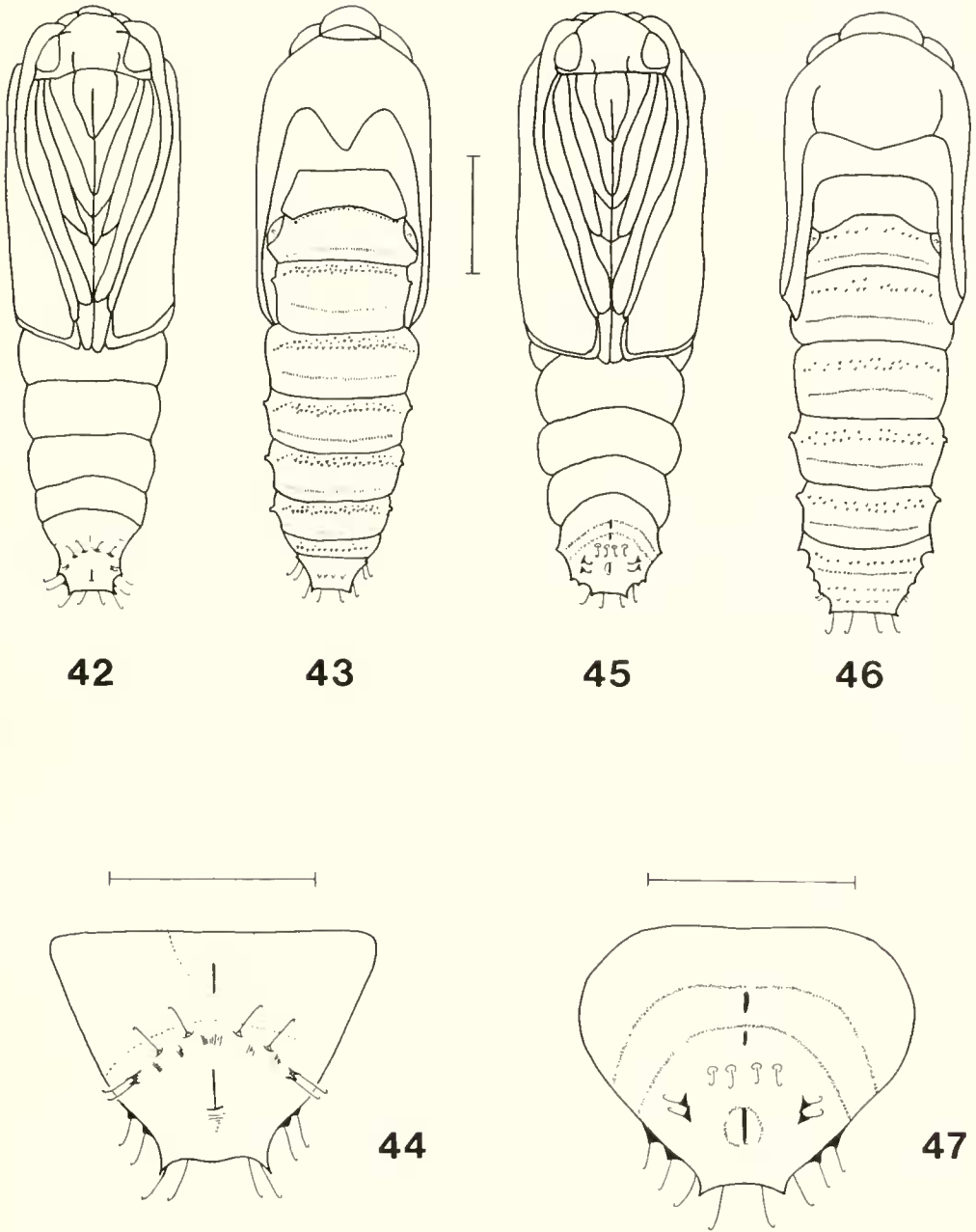
Female: Markings of forewings similar, but cinnamon (123A) in color. Hindwing coloration as in male. Length of forewing $4.0\text{--}4.5$ mm ($\bar{x} = 4.3 \pm 0.2$ mm, $n = 8$); length $2.6\text{--}2.9 \times$ maximum width. Length

of hindwing $3.4\text{--}3.9$ mm ($\bar{x} = 3.7 \pm 0.2$ mm, $n = 8$); length $2.7\text{--}3.2 \times$ maximum width.

Female genitalia (Fig. 12): Papillae anales setaceous, elongate. Length of apophysis anterior $1.0\text{--}1.1 \times$ apophysis posterior. Sterigma well sclerotized, quadrate, minute spinules medially, just posterior to ostium. Colliculum absent. Ductus bursae short, broad, gradually merging with corpus bursae. Corpus bursae convoluted, covered with many minute spinules at juncture of ductus bursae. Accessory bursa present, from mid-



Figs. 35–41. *L. baccharivora*, new species, larval chaetotaxy: 35, lateral view of prothorax, mesothorax, and abdominal segments 1, 6, 8, and 9; 36, dorsal view of head; 37, lateral view of head (scale = 0.1 mm); 38, right mandible (scale = 0.1 mm); 39, labrum, dorsal view; 40, labrum, ventral view (scale = 0.1 mm); 41, dorsal view of abdominal segments 8–10 (scale = 0.5 mm).



Figs. 42–47. *L. baccharivora*, new species, pupal structure: 42, ♂ ventral view; 43, ♂ dorsal view (scale = 1.0 mm); 44, ♂ ventral view of terminal segments (scale = 0.5 mm); 45, ♀ ventral view; 46, ♀ dorsal view (scale = 1.0 mm); 47, ♀ ventral view of terminal segments (scale = 0.5 mm).

dle of ductus bursae. Ductus seminalis from proximal end of corpus bursae.
Egg (Figs. 26–28).—Length 0.6 mm. Dorsal side sculptured with 4- and 5-point star shapes; ventral side smooth. Laid singly on leaves of host.

Larva (Figs. 29–41).—Maximum length of last instar 7.3 mm, n = 1.
Head: As in *L. scarificata*, except color raw umber (223); puncture Pb closer to P2 than P1, but less so than in former species; first cusp of mandible pointed.

Thorax: As in *L. scarificata*, except mesothorax with L3 on smaller pinaculum.

Abdomen: As in *L. scarificata*, except SD2 absent from segment 8; SV1 present on segment 9.

Pupa (Figs. 42–47).—As in *L. scarificata*, except anterior group of spines minute and in a single row on abdominal segment 2; anterior group of spines on abdominal segments 3–8 in male and 3–7 in females consisting of 2 rows, the anterior row having fewer and smaller spines than second row; segment 10 in male and segments 9–10 in female consisting of a single row of spines; posterior row of spines minute and on segments 2–7 in both sexes. Male with a single genital slit on a pad in middle of segment 9, another slit in middle of segment 10. Female with 3 genital slits, in middle of segment 9, a second on anterior edge of segment 10, and a third longer slit just posterior to middle of segment 10. Cremaster with 4 hooks on anterior edge and a pair of lateral hooks from spines on ventral side of segment 10; 3 pairs of lateral hooks and one pair of caudal hooks on edge of segment 10.

Holotype.—♂, genitalia slide USNM 23928, Lake Okeechobee, Okeechobee Co., Florida, 27°N, 81°W, September, 1984, leg. D. Green, laboratory reared, Brisbane, Australia, leg. W. A. Palmer. Type in the U.S. National Museum of Natural History, Smithsonian Institution, Washington, D.C.

Paratypes.—UNITED STATES: FLORIDA: 1967, W. Haseler, 1 ♂, genitalia slide MGP 923. Dade Co: Homestead, 1 April 1958, 1 ♂, 22 April 1959, 1 ♂, 8 February 1959, 1 ♀, 10 April 1959, 1 ♀, D. O. Wolfenbarger. Glades Co.: Lakeport, 26°59'N, 81°06'W, 5 October 1984, leg. D. Green, ex larva, *Baccharis halimifolia* L., 1 ♂, genitalia slide USNM 23755, 1 ♀. Highlands Co.: Lake Placid, Archb. Biol. St., 10-11-67, W. H. Haseler, ex foliage *Baccharis halimifolia*, 1 ♂, genitalia slide MGP 924. Parker Is., 26–29 May 1964, R. W. Hodges, 2 ♂. Monroe Co.: Tavernier, 25°00'N, 80°28'W, 9 May 1985, leg. W. A. Palmer, 85129-2-1, ex larva, *Baccharis halimifolia* L., 2 ♂, 2 ♀, geni-

italia slide USNM 23862. Okeechobee Co.: Lake Okeechobee, 27°N, 81°W, Sep. 1984, D. Green leg., laboratory reared Brisbane, Australia, W. A. Palmer leg., 9 ♂, genitalia slides USNM 23860, 23861, 23863, 4 ♀, genitalia slide USNM 23859. TEXAS: Harris Co.: Houston, 15 May 1979, 1 ♂, USNM 23930; 19 August 1966, A. & M. E. Blanchard, 2 ♂, genitalia slide USNM 23931. Clear Lake City, Armand Bayou, 20 May 1986, Coll. P. E. Boldt, reared from leaves of *Baccharis halimifolia*, 1 ♂. Deposited in USNM.

Host.—*Baccharis halimifolia* L., Compositae, sea myrtle.

Distribution (Map 1).—Known from south central to southern Florida, and eastern Texas.

Discussion.—This species is smaller and the males are darker than in *L. scarificata*. Males are easily recognized by the prominent costal fold on the hindwing, which is atrophied in *L. scarificata*. Male genitalia of *L. baccharivora* can be separated from those of *L. scarificata* by: 1) uncus bifid, 2) valva with sinuate costa, apex pointed, and elongate spatulate scales arising from costal half, 3) a more developed sacculus, and 4) a wider aedoeagus. Female genitalia can be differentiated by: 1) papillae anales more elongate, 2) sterigma more heavily sclerotized and quadrate with a median patch of minute spicules above ostium, and 3) colliculum absent.

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Miller, Department of Entomology, University of Minnesota, St. Paul, Minnesota.

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